

Applicando la **definizione di derivata**, calcolare nel punto  $x$ , la derivata delle seguenti funzioni:

**11.** a)  $y = x^3$ ;

b)  $y = x^4 + 2x$ ;

c)  $y = 2\sqrt{x}$ ;

d)  $y = \text{sen} 2x$ .

**12.** a)  $y = \frac{2}{x}$ ;

b)  $y = \frac{1}{\sqrt{x}}$ ;

c)  $y = \frac{1}{x^2}$ ;

d)  $y = \frac{x+1}{x-1}$ .

**13.** a)  $y = \frac{1}{x^3}$ ;

b)  $y = \sqrt{1+2x}$ ;

c)  $y = \frac{1}{3x+2}$ ;

d)  $y = \sqrt{1+x^2}$ .

**14.** a)  $y = \frac{2x-3}{3x-4}$ ;

b)  $y = \frac{1}{x^2-1}$ ;

c)  $y = \frac{3x-4}{x^2-1}$ ;

d)  $y = \frac{3x^2-5}{x^2-1}$ .

**15.** a)  $y = \frac{4x^2-5x+3}{x^2-6x+5}$ ;

b)  $y = \frac{1}{\cos x}$ ;

c)  $y = \frac{2-3 \cos x}{5-\text{sen} x}$ ;

d)  $y = 4 \cos^2 x + 3x$ .

**16.** a)  $y = x^a (x > 0, a \in \mathbb{R})$ ;

b)  $y = \frac{x}{x^2+1}$ ;

c)  $y = \sqrt{\frac{x-1}{x+1}}$ ;

d)  $y = x^2 + \sqrt{\frac{3}{2x}}$ .